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Document: HSW44C_manual.pdf

INSTRUCTION MANUAL

# HSW44C

4x4 HDMI over CAT5 Matrix
with IR Pass-through

# SAFETEY & NOTICE

The HSW44C 4x4 HDMI over CAT5 Matrix with IR Pass-through has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipment, the HSW44C should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit.
- Always unplug the power to the device before cleaning.

## NOTICE

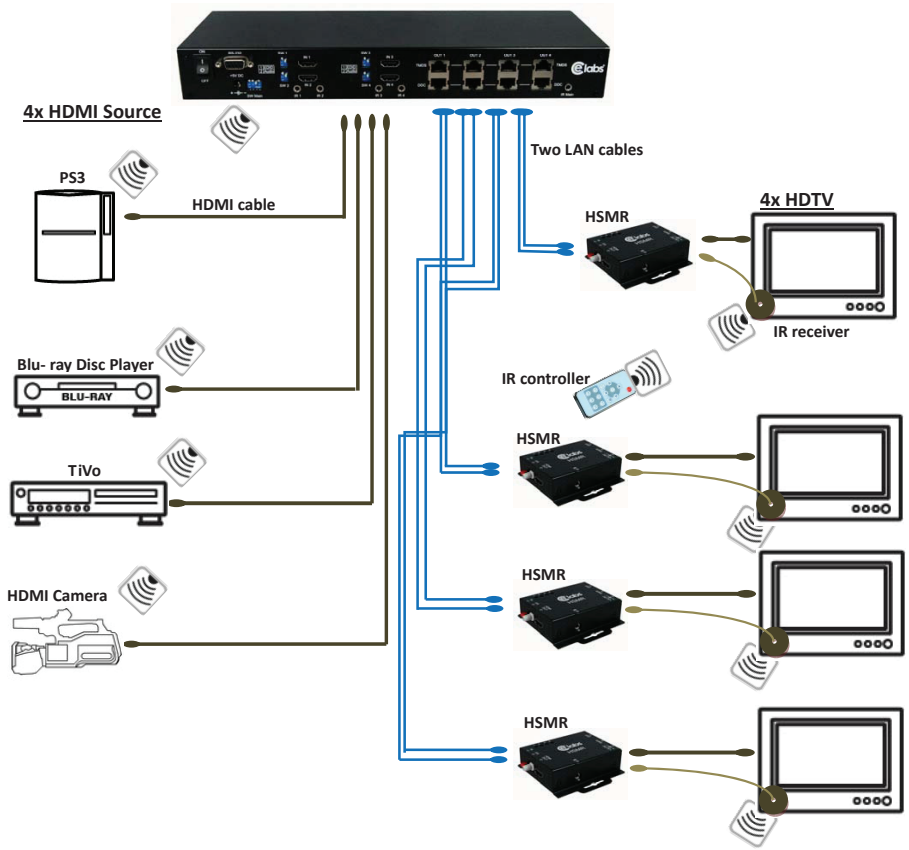
1. When adjusting the signal level on the receiver unit, please dial the rotary control switch from 7 to 0 and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!
2. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI or HDMI display EDID information.
3. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz UTP cable and ASTRODESIGN Video Signal Generator VG-859C.
4. The transmission length is largely affected by the type of Cat-5/5e/6 cables, the type of HDMI sources, and the type of HDMI display. The testing result shows solid UTP cables (usually in the form of 300m [1,000ft] bulk cables) can transmit a lot longer signals than stranded UTP cables (usually in the form of fixed length patch cords). Shielded STP cables are better suited than unshielded UTP cables. A solid UTP Cat-5e cable shows longer transmission range than stranded STP Cat-6 cable. For long extension applications, solid UTP/STP cables are the only viable choice.
5. EIA/TIA-568-B termination (T568B) for Cat-5/5e/6 cables is recommended for better performance.
6. To reduce the interference among the unshielded twisted pairs of wires in Cat-5/5e/6 cable, one can use shielded STP cables to improve EMI problems, which is worsen in long transmission.
7. Because the quality of the CAT5/6 cables has the major effect on how long the transmission limit can achieve and how good is the received picture quality, the actual transmission range is subject to one's choice of Cat-5/5e/6 cables. For desired resolutions greater than 1080i or 1280x1024, a Cat-6 cable is recommended.
8. If your HDMI display has multiple HDMI inputs, it is found that the first HDMI input [HDMI input #1] generally can produce better transmission performance among all HDMI inputs.
9. The HSMR has been tested extensively and found that it doesn't require external power supply. If in rare situation you find it cannot work with the HSW44C, please use any +5V power adapter to plug in the power jack and see if it can work. If not, please contact your technical support for further service.
10. Additional IR remote controls and IR blaster cables can be purchased as optional accessories to control the HDMI sources located separately.

## Performance Guide for HDMI over LAN Cable Transmission

| Performance rating | | Type of LAN cable | | |
|---|---|---|---|---|
| **Wiring** | **Shielding** | **CAT5** | **CAT5e** | **CAT6** |
| Solid | Unshielded (UTP) | ★★★ | ★★★★ | ★★★★★ |
| | Shielded (STP) | ★★★ | ★★★ | ★★★★ |
| Stranded | Unshielded (UTP) | ★ | ★★ | ★★ |
| | Shielded (STP) | ★ | ★ | ★★ |
| **Termination** | | Please use **EIA/TIA-568-B** termination (**T568B**) at any time | | |

## INTRODUCTION

The HSW44C 4x4 HDMI over CAT5 Matrix Switch with IR Pass-through provides the most flexible and cost effective solution in the market to route high definition video sources plus multi-channel (up to 7.1-channel) digital audio from any of the eight HDMI source devices to the remote displays at the same time. Through low cost Cat-5/5e/6 cables, not only high quality video and audio can be transmitted to the display sites, but also users can switch among eight HDMI sources using the push button on the receiver or remote control. With single power design at the source site, each remote module is easily installed without power supply. Furthermore, the built-in IR extension allows users to control the HDMI source devices such as the Blu-ray Disc player or satellite receiver at display site!



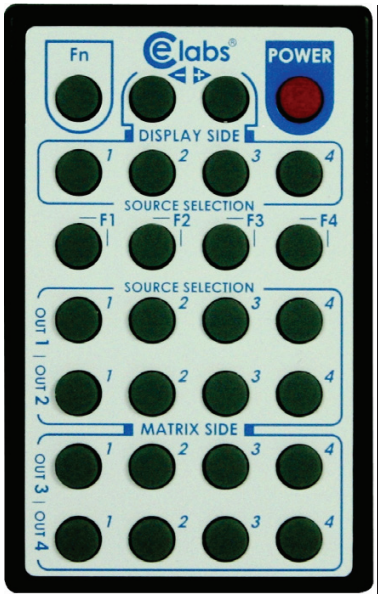
## FEATURES

- State-of-the-art Silicon Image (Founder of HDMI) chipset embedded for upmost compatibility and reliability
- HDMI 1.3c compliant
- HDCP compliant
- Allows any source to be displayed on multiple displays at the same time
- Allows any HDMI display to view any HDMI source at any time
- Supports 7.1 channel digital audio
- Supports default HDMI EDID and learns the EDID of displays
- The matrix master can switch every output channels to any HDMI inputs by push-in button, IR remote control, or RS-232 control
- Allows control of local HDMI sources such as DVD and TiVo® by IR extender through control path at remote receiver
- Allows control of main matrix center through control line at remote receiver
- Extends video signal up to 35m (115 feet) over CAT5e at 1080p and likely longer with better HDMI source device (such as PS3®), better grade HDMI display (such as Sony X-series HDTV®), and better quality solid CAT6 cable
- Easy installation with rack-mounting and wall-mounting designs for master and receiver respectively
- Fast response time – 2~5 seconds for channel switch

The length depends on the characteristics and quality of the cables. Higher resolutions and longer transmission distances require low skew cables (<25ns/100m) for best performance. Unshielded CAT6 with metal RJ-45 connectors is recommended.

## IR DIRECT CODES

### Default Custom Code — IR2 Code: 00 FF




| Function **0x17** | ◀ **0x0A** | ▶ **0x0C** | POWER **0x02** |
|---|---|---|---|
| SOURCE SEL. 1 **0x54** | SOURCE SEL. 2 **0x55** | SOURCE SEL 3 **0x56** | SOURCE SEL. 4 **0x01** |
| F1 **0x57** | F2 **0x58** | F3 **0x59** | F4 **0x06** |
| **Output Port 1** | | | |
| Input 1- **0x18** | Input 2 - **0x5B** | Input 3 - **0x19** | Input 4 - **0x07** |
| **Output Po2** | | | |
| Input 1 - **0x1B** | Input 2 - **0x5A** | Input 3- **0x1A** | Input 4 - **0x04** |
| **Output Po3** | | | |
| Input 1 - **0x0E** | Input 2 - **0x0D** | Input 3 - **0x12** | Input 4 - **0x05** |
| **Output Po4** | | | |
| Input 1 - **0x1C** | Input 2 - **0x1D** | Input 3 - **0x1F** | Input 4 - **0x1E** |

### Custom Code — IR3 Code: 0x12 0x21

| | Output 1 | Output 2 | Output 3 | Output 4 |
|---|---|---|---|---|
| Source 1 | **0xA1** | **0xB1** | **0xC1** | **0xD1** |
| Source 2 | **0xA2** | **0xB2** | **0xC2** | **0xD2** |
| Source 3 | **0xA3** | **0xB3** | **0xC3** | **0xD3** |
| Source 4 | **0xA4** | **0xB4** | **0xC4** | **0xD4** |

### Custom Code — IR4 Code: 0x13 0x31

| | Output 1 | Output 2 | Output 3 | Output 4 |
|---|---|---|---|---|
| Source 1 | **0xAE** | **0xBE** | **0xCE** | **0xDE** |
| Source 2 | **0xAD** | **0xBD** | **0xCD** | **0xDD** |
| Source 3 | **0xAC** | **0xBC** | **0xCC** | **0xDC** |
| Source 4 | **0xAB** | **0xBB** | **0xCB** | **0xDB** |

# EDID LEARNING

The EDID learning function is only necessary whenever you encounter any display on the HDMI output port that cannot play audio and video properly. Because the HDMI source devices and displays may have various level of capability in playing audio and video, the general principle is that the source device will output the lowest standards in audio format and video resolutions to be commonly acceptable among all HDMI displays. In this case, a 720p stereo HDMI signal output would be probably the safest choice. Nevertheless, the user can force the matrix to learn the EDID of the lowest capable HDMI display among others to make sure all displays are capable to play the HDMI signals normally by performing the procedures stated below.

**SW1-SW4 Pin-1 must be set "ON" for EDID Learning Mode**

| DIP Switch Position Pin-1 | Video | Audio | Description |
|---|---|---|---|
| **ON [⬇]** | Bypass | Stereo | **EDID Learning** – for learning EDID from the receiver |

## Manually connect displays to HDMI input ports

1. Power up the matrix master unit. Connect the HDMI display that its EDID needs to be learned to any of the HDMI INPU1-INPU4 port where your source device has trouble to show the picture normally.

2. To learn the display's EDID for source device connected to respective HDMI INPU1-INPUT8 port, pull both pins of respective DIP switch SW1-SW4 up-and-down to stay at ON[ ]-ON[ ] and wait for about 5 seconds to complete the EDID learning process. You DON'T NEED to pull up the DIP switch again unless you want to learn another display's EDID by pulling both DIP switch pin-1 & pin-2 of SW1-SW4 up-and-down one more time.

3. Repeat step1 & step2 if you want to learn the EDID of this HDMI display on any other HDMI input ports that have same trouble playing the audio/video properly.

# SPECIFICATIONS & PACKAGE CONTENTS

| Model Name | HSW44C | |
|---|---|---|
| **Technical** | HSW44C | HSMR |
| Role of usage | 4x4 true matrix / Transmitter [TX] | Receiver [RX] |
| HDMI compliance | HDMI 1.3c | |
| HDCP compliance | Yes | |
| Video bandwidth | Single-link 225MHz [6.75Gbps] | |
| Video support | 480i / 480p / 720p / 1080i / 1080p60 12-bit color | |
| Audio support | Surround sound (up to 7.1ch) or stereo digital audio | |
| HDMI over CAT5 transmission range | Full HD (1080p) – 35m (115ft) [CAT5e] / 40m (130ft) [CAT6]<br>HD (720p/1080i) – 50m (165ft) [CAT5e] / 55m (180ft) [CAT6] | |
| HDMI equalization | N/A | 8-level digital rotary control |
| Input TMDS signal | 1.2 Volts [peak-to-peak] | |
| Input DDC signal | 5 Volts [peak-to-peak TTL] | |
| ESD protection | [1] Human body model — ±19kV [air-gap discharge] & ±12kV [contact discharge]<br>[2] Core chipset — ±8kV | |
| PCB stack-up | 4-layer board [impendence control — differential 100Ω single 50Ω] | |
| Input | 4x HDMI<br>1x RS-232 | 1x RJ-45 [HDMI signal]<br>1x RJ-45 [Channel control]<br>1x IR socket for IR receiver |
| Output | 4x RJ-45 [HDMI signal]<br>4x RJ-45 [Channel control]<br>5x IR socket for IR blaster | 1x HDMI |
| HDMI Input selection | Push button / IR remote control / RS-232 | Push button / IR remote control |
| HDMI source control | Controllable via IR pass-through from IR receiver at HSMR to IR blaster at HSW44C | |
| IR remote control | Electro-optical characteristics: τ = 25° / Carrier frequency: 36-40kHz | |
| HDMI connector | Type A [19-pin female] | |
| RJ-45 connector | WE/SS 8P8C with 2 LED indicators | |
| RS-232 connector | DE-9 [9-pin D-sub female] | |
| USB connector[3] | Standard type-B [square shape] | |
| 3.5mm connector | Earphone jack for IR blaster<br>[IR Main] IR control on all source devices<br>[IR PASS-THROUGH1~8] IR control on individual source device | Earphone jack for IR receiver<br>[IR RECEIVER] Receives IR commands from any IR remote control |
| DIP switch | [SW1~SW4] 2-pin for EDID & audio/video settings<br>[SW Main] 4-pin for operation & firmware update | |

# SPECIFICATIONS & PACKAGE CONTENTS

| Mechanical | | HSW44C | HSMR |
|---|---|---|---|
| Housing | | Metal enclosure | |
| Dimensions (L x W x H) | Model | 440 x 290 x 44mm [1'5" x 11.4" x 1.7"] | 85 x 90 x 25mm [3.3" x 3.5" x 1"] |
| | Package | 530 x 400 x130mm [1'9" x 1'4" x 5"] | |
| | Carton | 280 x 550 x 420mm [11" x 1'10" x 1'5"] | |
| Weight | Model | 3250g [7.2 lbs] | 180g [6.3oz] |
| | Package | 7.1 kg [15.6 lbs] | |
| Fixedness | | 1U rack-mount with ears | Wall-mount with screws |
| Power supply | | AC Power 100-240V | Not necessarily required[1] |
| Power consumption | | 60 Watts [max] | 1.5 Watt [max] (provided by HSW44C) |
| Operation temperature | | 0~40°C [32~104°F] | |
| Storage temperature | | -20~60°C [-4~140°F] | |
| Relative humidity | | 20~90% RH [no condensation] | |
| **Package Contents** | | 1x HSW44C<br>1x IR blaster[2]<br>2x 1U rack mounting-ear<br>1x IR remote control[2]<br>1x Instruction manual | 4x HSMR<br>4x IR receiver<br>8x Wall-mounting screws<br>1x 5V 6A power supply unit |

1. The HSMR has been tested extensively and found that it doesn't require external power supply. If in rare situation you find it cannot work with the HSW44C, please use any +5V power supply unit to plug in the power jack and see if it can work. If not, please contact our technical support for further service.

2. Additional IR remote control and IR blaster cable can be purchased as optional accessories to control the HDMI sources located separately.

3. USB or RS-232 control must be connected either one at a time. Connecting both types of cables may cause command confusion.

# DISPLAY SIDE

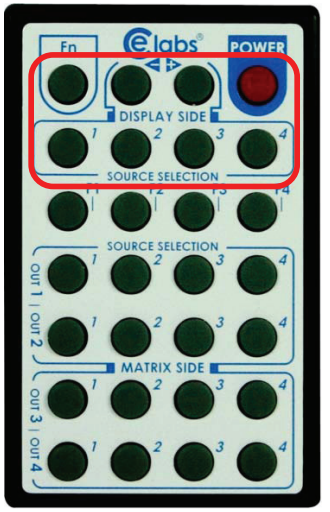
## Method A: Push button for switching input channels

Press the INPUT SELECT push button to switch the input source on the respective output port connected to the matrix receiver in sequential order. The selected input source will be displayed on the seven segment display of INPUT CHANNEL.

## Method B1: IR remote control for switching input channels

Please decide which input channel to be selected by pressing Source Selection 1 to Source Selection 4. Or you can use left ◀ and right ▶ button to enter IR control mode and select the input channel in ascending and descending order respectively. The setting will be effective in a couple of seconds.

| | |
|---|---|
| ◀ | Switch input port in descending order* |
| ▶ | Switch input port in ascending order* |
| **SOURCE SELECTION 1** | Switch the display channel at the remote site to input port 1 |
| **SOURCE SELECTION 2** | Switch the display channel at the remote site to input port 2 |
| **SOURCE SELECTION 3** | Switch the display channel at the remote site to input port 3 |
| **SOURCE SELECTION 4** | Switch the display channel at the remote site to input port 4 |




Note

Right ( ▶ ) button to switch input source in ascending order (1, 2, 3, 4, 1, 2, .....)

Left ( ◀ ) button to switch input source in descending order (1, 4, 3, 2, 1, 4, .....)

## Method B2: IR remote control for controlling the HDMI sources

Users can use the corresponding IR remote to control the HDMI source.

**RS-232 transmission Format**
Baud rate: 9600
Data bit: 8
Parity: None

## Set Command

| Command Code | | Response | Description |
|---|---|---|---|
| Data | Check Sum | ACK | SET |
| 0x08 0x4d 0x41 0x51 0x44 0x05 *0x01~0xff | 0x31~0x2f | 0xaa | Set HSW44C's device ID |
| 0x0c 0x4d 0x41 0x51 0x44 Device_Id 0x02 port1 port2 port3 port4 | 0x0c+...+port4 | 0xaa | Set HSW44C's source mapping of output port |

## Status Command

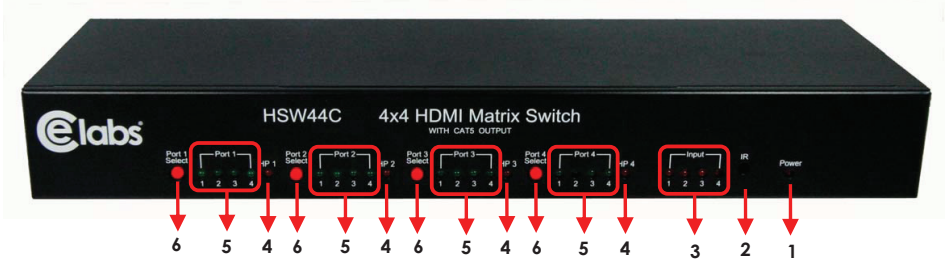
| Command Code | | Response | | Description |
|---|---|---|---|---|
| Data | Check Sum | Get Status | Check Sum | Status |
| 0x05 0x4d 0x4f 0x44 | 0xe5 | 0xaa 0x06 0x4d 0x41 0x51 0x44 | 0x29 | Get device type |
| 0x07 0x4d 0x41 0x53 0x57 0x04 | 0x43 | 0xaa 0x3 0x01~0xff | 0x04~0x02 | Get device ID |
| 0x08 0x4d 0x41 0x51 0x44 *0x01~0xFF 0x01 | 0x2e~0x2c | 0xaa 0x06 port1 port2 port3 port4 | 0x06 + port1~port4 | Get source mapping of output port |
| 0x08 0x4d 0x41 0x51 0x44 *0x01~0xFF 0x04 | 0x30~0x2e | 0xaa 0x08 0x56 0x33 0x2e 0x30 0x31 0x61 | 0x81 | Software version |

**Check sum:**
Check sum = (Data value sum)%256 The check sum of response is not included 0xaa.

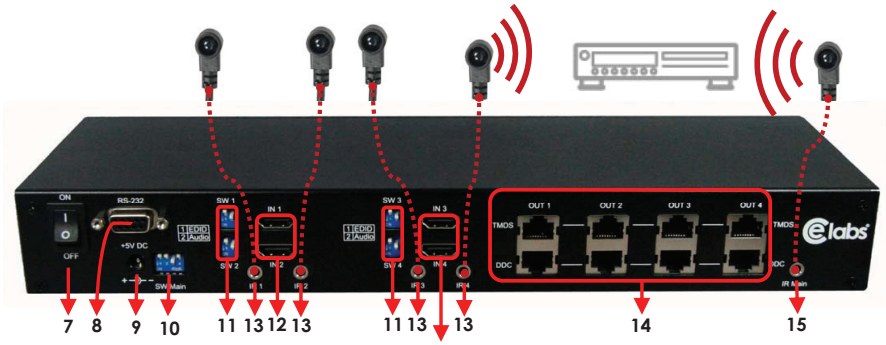
**0x01 ~ 0xFF:**
This data is device ID. The Device ID saved in the device, if the device ID of the controlled device is 0xff , the device will ignore its own ID and carry out the commands.

# PANEL DESCRIPTIONS

## HSW44C

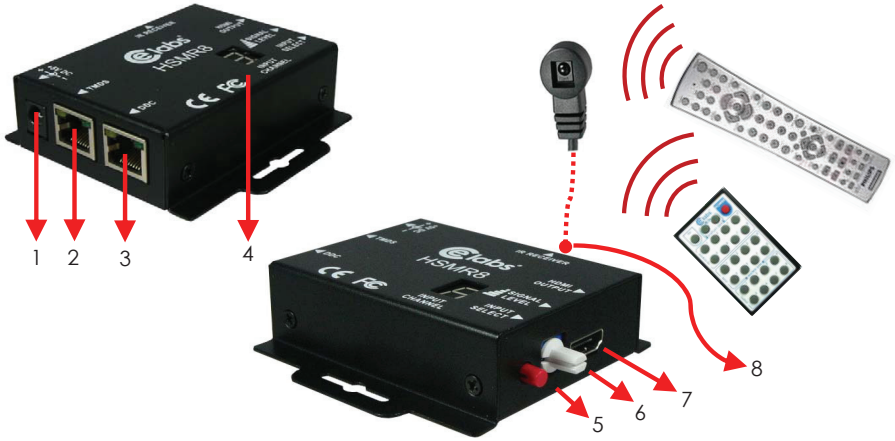



1. **Power:** Power indicator LED
2. **IR:** IR receiver
3. **Input:** Input source indicator LED
4. **HP1–HP4:** Hot-plug connection status indicator LED for each output channel
5. **Port1–Port4:** Input source channels mapping LED for each output channel
6. **Port1 Select–Port4 Select:** Push button for selecting input channel




7. **ON–OFF:** Power ON/OFF
8. **RS-232:** RS-232 control port
9. **+5V DC:** 5V DC power jack
10. **SW Main:** DIP switches [see DIP Switch section in p.8]
11. **SW1–SW4:** DIP switch [see DIP Switch section in p.7]
12. **IN1–IN4:** HDMI inputs
13. **IR1–IR4:** IR extender jacks for individual HDMI source control
14. **OUT1–OUT4:** RJ-45 TMDS/DDC outputs for each output channel
15. **IR Main:** IR extender jack for all HDMI source control [**default socket for IR emitter]**

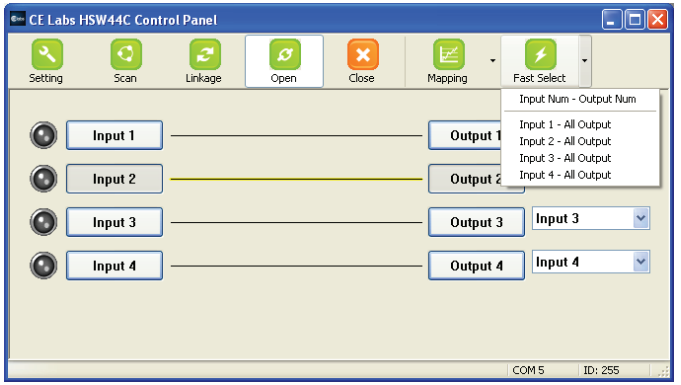
## HSMR



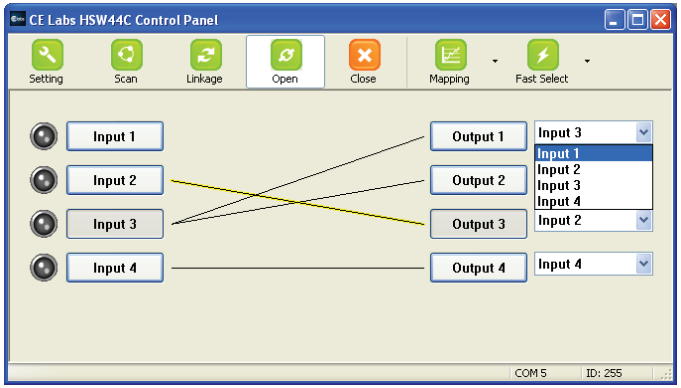

1. **+5V DC:** Spare power jack for over 60m transmission when the RX may need external power to work*.
2. **TMDS:** Plug in the CAT5 connected to the respective TMDS port on the HSW44C
3. **DDC:** Plug in the CAT5 connected to the respective DDC port on the HSW44C
4. **INPUT CHANNEL:** Display the current showing HDMI source channel
5. **INPUT SELECT:** Push button for switching input source channel in sequential order
6. **Signal Level 0-7:** Adjust the 8-level equalization control for HDMI signals. 0 = strongest to 7 = weakest. It is recommended to switch from 7 to 0 to find the optimal visual experience.
7. **HDMI Output:** Connect to HDTV with a HDMI cable
8. **IR RECEIVER:** Plug in IR receiver

The HSMR has been tested extensively and found that it doesn't require external power supply. If in rare situation you find it cannot work with the HSW44C, please use any +5V power adapter to plug in the power jack and see if it can work. If not, please contact our technical support for further service.

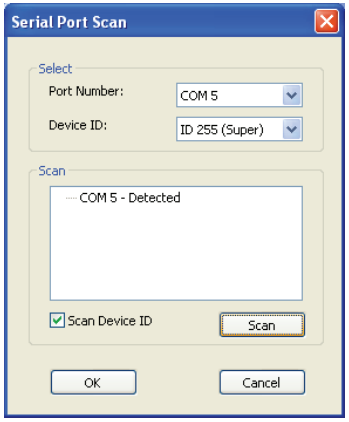
**7** Fast Select: Provide the fast setup be tween inputs and outputs of the matrix. "Channel 1" makes all outputs see input-1, same for the remaining buttons.




**8** Output Channel Setup: Click on this button, a quick selection table of inputs will show up. Users can therefore easily select the input video for each output.



**2** Scan: Choose COM port number and Device ID for scan. Then tick "Scan Device ID"and press "Scan" button to know which COM port is connected based on this Device ID.

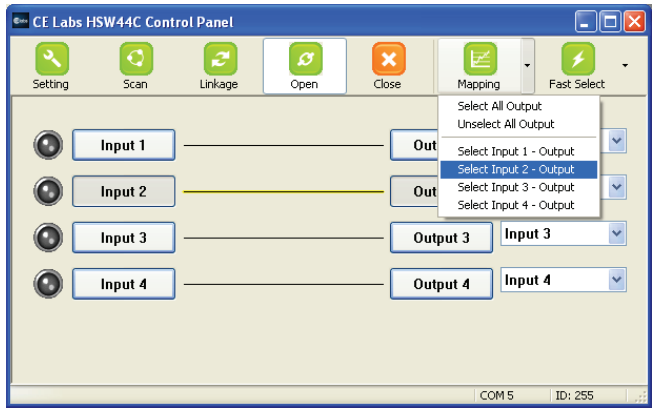



**3** Linkage: Indicate the connection status.

**4** Open: Open the COM port after scan to establish the connection between PC and the matrix.

**5** Close: Release the COM port after scan.

**6** Mapping: Click on this button, a quick selection table of inputs will show up. Users can therefore easily select the output video for each input by pressing "Output" button.




## DIP SWITCH

SW1-SW4 for EDID/Audio

| DIP Switch Position | | Video | Audio | Description |
|---|---|---|---|---|
| Pin 1 | Pin 2 | | | |
| OFF [⬆] | OFF [⬆] | Up to 1080p | Surround[1] | Default Mode[2] – Up to 1080p video & surround sound audio output up to 7.1ch DTS-HD & Dolby TrueHD |
| OFF [⬆] | ON [⬇] | Up to 1080p | Stereo | Safe Mode[3] – Enforce the system output at 1080p video and stereo audio for basic compatibility among HDTVs |
| ON [⬇] | OFF [⬆] | Bypass[4] | Bypass[4] | EDID Learning Mode[5] – for learning EDID from the display while playing any received HDMI audio format |
| ON [⬇] | ON [⬇] | Bypass | Stereo | EDID Learning & Stereo Mode[5] – for learning EDID from the display while enforcing stereo output if any HDTV cannot play surround sound normally |

Note:

1. If the HDTV shows video but without audio, please try to set audio mode to stereo.
2. Factory default setting of [SW1]-[SW4] is pin 1 at OFF (⬆) & pin 2 at OFF (⬆) for 1080p with surround sound audio.
3. If you encounter any unsolved audio/video output problem during system installation, please turn any [SW1]-[SW4] to pin 1 at OFF (⬆) & pin 2 at ON (⬇) for safe mode to enforce the most compatible 720p stereo output for system check. However, the safe mode cannot be initiated if your HDMI source is set to enforce 1080p output. In this case, please reconfigure your HDMI source to all resolution output for troubleshooting.
4. Bypass means the matrix will maintain playing the original format of HDMI signals in video and perhaps audio. By setting at this mode, the users may encounter compatibility issue among different kinds of HDMI sources and displays. If you cannot get the audio and/or video output normally at the system installation, please change the DIP switch setting to default mode or even safe mode to verify the functionality of the device.
5. To learn the EDID of HDMI display for respective HDMI source devices, please see the [EDID Learning] section in the next page for more detail information.

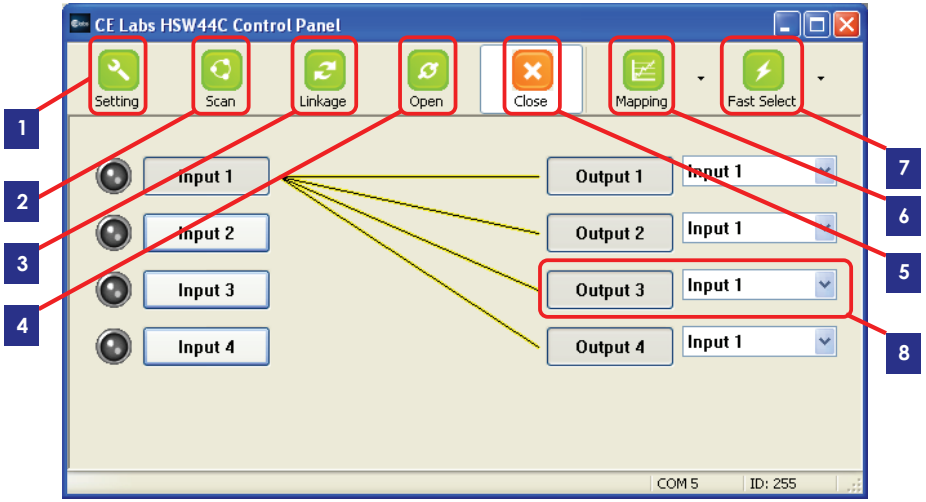
## SW Main for firmware update (for technical support only)

| DIP Switch Position | Pin 1 | Pin 2 | Pin 3 | Pin 4 |
|---|---|---|---|---|
| Normal Operation Mode[6] | OFF [⬆] | OFF [⬆] | ON [⬇] | OFF [⬆] |
| Firmware Update Mode[7] | ON [⬇] | ON [⬇] | OFF [⬆] | OFF [⬆] |

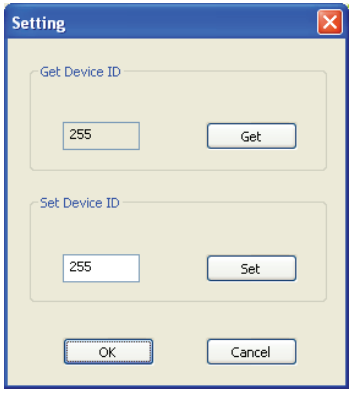
Note

6. Factory default for SW Main: Pin#1-OFF [⬆], Pin#2-OFF[⬆], Pin#3-ON [⬇], Pin#4-OFF[⬆]. PLEASE MAINTAIN THIS SETTING AT ANYTIME FOR REGULAR USE!
7. Sequence for firmware update WARNING! [Firmware update only can be done via RS-232 port and connection to PC set at COM1)
   [1] Power off the HSW44C.
   [2] Set the DIP switch position to Firmware Update Mode.
   [3] Power on the HSW44C.
   [4] Power off the HSW44C.
   [5] Set the DIP switch position to Normal Operation Mode.
   [6] Power on the HSW44C.

## Method C: Software Control through RS-232




1 Setting: Set the ID of this device for cascading or other purposes in the future.



# CHANNEL CONTROL

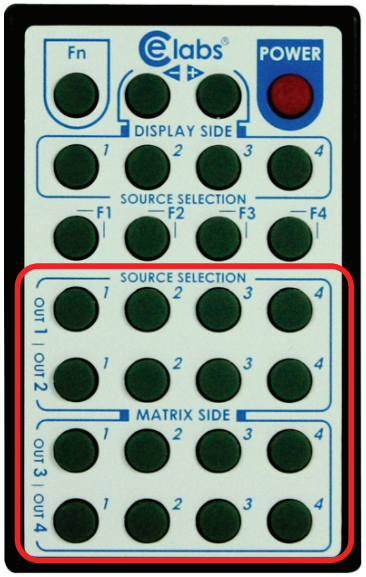
## MATRIX SIDE

Method A: Push Button

1. Push the red switch button on output port to select which port to be changed.

Method B: IR Remote Control

a. Choose the output port you want to make channel switch from OUT1 to OUT4 then press 1-4 channel button to choose the HDMI input source shown on the chosen output display.




# IR PASS-THROUGH

## IR Sockets

## HSW44C

IR Main: The default location for IR blaster to transmit all IR command signals received from any of the eight remote receivers to all of the HDMI sources.

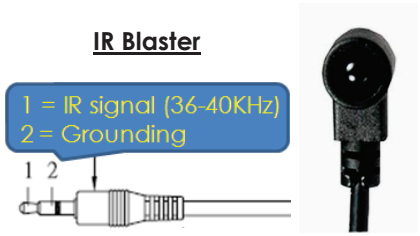
IR1– IR4: IR blaster connected here can only transmit IR command signals from the remote receivers that are setting at respective input channel from 1 to 4.

## HSMR

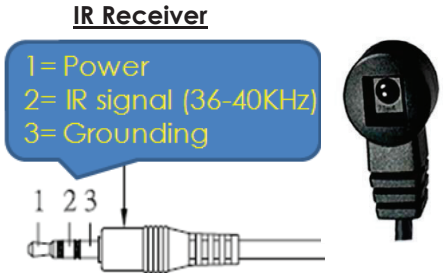
IR RECEIVER: IR receiver connected here can receive all IR command signals from the IR remote controls of HSW44C and all other HDMI source devices.

## Definition of IR Earphone Jack

**IR Blaster**




**IR Receiver**




The IR extension cables are standard market configuration. You can buy from CE labs if necessary for replacement use.

## Supported IR Data Format

| Data Format | Suitable | Not Recommended |
|---|---|---|
| NEC | ✔ | |
| RC5 | ✔ | |
| TOSHIBA MICOM CODE | ✔ | |
| GRUNDIG CODE | ✔ | |
| SONY 12 BIT CODE | ✔ | |
| SONY 15 BIT CODE | ✔ | |
| SONY 20 BIT CODE | ✔ | |
| RCA CODE | | ✔ |
| RCM CODE | | ✔ |
| MATSUSHITA CODE | | ✔ |
| MITSUBISHI CODE | ✔ | |
| ZENITH CODE | ✔ | |
| JVC CODE | ✔ | |
| M50560-001P | ✔ | |
| MN6125H | ✔ | |
| MN6125L | ✔ | |
| MN6014_C5D7 | ✔ | |
| MN6014-C6D6 | ✔ | |
| MC14457P | ✔ | |
| LC7464(AHEA) | ✔ | |
| GEMINI_CM | ✔ | |

# HARDWARE INSTALLATION

## HSW44C as master

1. Connect all sources to HDMI Inputs on the 4x4 HDMI over CAT5 matrix master HSW44C
2. Connect each DDC output port on the HSW44C to respective DDC input on the remote receiver HSMR
3. Connect each TMDS output port on the HSW44C to respective TMDS input on the remote receiver HSMR
4. Connect IR blaster to the IR MAIN jack of HSW44C and direct the IR blaster to the built-in IR receiver of the sources
5. Connect the 5V 6A DC power supply unit to the HSW44C
6. Power on all HDMI sources
7. Power on the HSW44C

## HSMR as receiver

1. Connect each HDMI output to HDMI displays
2. Connect each DDC output port on the HSW44C to respective DDC port on the HSMR
3. Connect each TMDS output port on the HSW44C to respective TMDS input on the remote receiver HSMR
4. Connect IR receiver and place the IR receiver at the appropriate position that can receive the IR command signals sent from the users
5. Dial the 8-level rotary control switch to adjust the HDMI signal level until the picture and sound are clear